

HEARING BEFORE THE UNITED STATES SENATE
CLEAN AIR, CLIMATE, AND NUCLEAR SAFETY SUBCOMMITTEE
ON THE CRYPTO-ASSET ENVIRONMENTAL TRANSPARENCY ACT

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Testimony of Robert Altenburg,
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Thank you, Chairman Markey, Ranking Member Ricketts, and members of the committee.

My name is Rob Altenburg, the Senior Director for Energy and Climate at Citizens for Pennsylvania's Future—a membership-based nonprofit environmental advocacy organization.

I've been working on energy and environmental issues for over 30-years and I'm here today to share why I'm concerned about Bitcoin and other related "proof-of-work" cryptocurrencies.

What is Bitcoin and Blockchain?

That requires a little bit of background... First, for all its "high-tech" image, Bitcoin is based on a simple idea that has been around since the 1980's.

It's called a blockchain, but it's basically an accounting ledger where each page, or "block", records Bitcoin transactions. Part of what keeps this ledger secure is that creating new blocks is very, very difficult.

Finding—or "mining"—a new valid block, is a guessing game where the odds of being correct are less than one chance in one hundred billion trillion—much lower odds than winning the lottery and the odds get worse as more miners join the race. The winner—the first one to find a valid block—is rewarded with newly "mined" Bitcoin worth over \$140,000 and there are no prizes for second place.

To be competitive Bitcoin miners often use racks of special-purpose computers that make trillions of guesses every second. Each of those computers can use more than three times as much energy as a typical house, and a single miner might run tens of thousands of them 24/7.

Altogether, Bitcoin consumes more energy than 80% of our states, and more than many entire countries.

Bitcoin is wasteful by design but, this sort of waste just isn't necessary. Bitcoin mining's "guessing game" system—called "proof-of-work"—is essentially cryptocurrency "Version 1.0", but newer versions now accomplish the same things faster and cheaper. Ethereum, for example, recently converted to the newer "proof-of-stake" system, and it can do everything Bitcoin can and more while using a tiny fraction of the energy.

What we are seeing on the ground

For now though, Bitcoin's system is still dominant and the enormous amount of energy it wastes must come from somewhere—In Pennsylvania, we are seeing that on the ground.

Waste coal

In 2021 one company announced plans to purchase three waste-coal fired power plants and install up to 57,000 bitcoin miners, and they already have two plants in operation.

Waste coal is a problematic fuel to say the least. As its name implies, it has a low energy value compared to ordinary coal, so plants need to burn even more to generate the same amount of electricity. In the process, they emit more ozone precursors, fine particulates, acid gasses, heavy metals, and it's the second most carbon-intensive form of generation behind residual fuel oil.

Fracked gas

Then, in January of last year, state inspectors found 10MW worth of generators, had literally plugged in to fracked-gas wellheads and were using the gas to mine Bitcoin without obtaining any permits. This sort of mining is increasing, but without clear reporting requirements, it's impossible to know which, or how many, of Pennsylvania's thousands of fracked-gas wells are being used this way.

Media reports, and even permit applications, are sporadic. And, even where there are reports, miners may call themselves "data centers" and not mention Bitcoin at all.

In addition to the pollution from drilling and fracking, Bitcoin mining also causes noise pollution. The sound of these operations has been compared to the whine of a giant dentist's drill, or a jet engine that never stops. In some cases, can be heard over a mile away. More than just an annoying nuisance that lowers property values, persistent noise pollution has been shown to cause health problems for both people and wildlife.

Nuclear

It's not just burning fossil fuels directly that's the problem. We are seeing Bitcoin operations at nuclear power plants, and operators claim this is carbon-free energy, but that doesn't tell the whole story. We don't have a surplus of clean energy, so when carbon-free energy is diverted from our power grid, polluting sources often make up the difference.

Financial Cost

Bitcoin mining is bad for public health and the environment, and it's bad for the power grid and our wallets as well.

Miners claim that they can easily pause operations when the grid needs the power but that only happens when the electricity is worth more than the Bitcoins. Essentially, we would be linking our electricity prices to the volatility of the Bitcoin market, and that is a terrible idea.

Worse yet, by wasting “cheap” electricity on Bitcoin mining, wholesale prices will go up for everyone else.

In short... Bitcoin mining is wasteful by design, and waste is never good.

Thank You